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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/578,737	05/10/2006	Jeong-Bong Yoon	1455-061439	5018

28289 7590 07/19/2010

THE WEBB LAW FIRM, P.C.
700 KOPPERS BUILDING
436 SEVENTH AVENUE
PITTSBURGH, PA 15219

EXAMINER	
KESSLER, CHRISTOPHER S	
ART UNIT	PAPER NUMBER
1793	
MAIL DATE	DELIVERY MODE
07/19/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/578,737	YOON ET AL.	
	Examiner	Art Unit	
	CHRISTOPHER KESSLER	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 June 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *83,85 and 87-168* is/are pending in the application.

4a) Of the above claim(s) *123-162 and 166-168* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *83, 85, 87-122 and 163-165* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 19 May 2010 has been entered.

Status of Claims

2. Responsive to the amendment filed 19 May 2010, claims 99 and 114 are amended. Claims 83, 85, 87-122 and 163-165 are currently under examination.

Status of Previous Rejections

3. Responsive to the amendment filed 19 May 2010, new grounds of rejection are presented.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 83, 85, 87-122 and 163-165 are rejected under 35 U.S.C. 103(a) as being unpatentable over WIPO document WO 2003/031670 A1 (hereinafter "Murakami").

Regarding claim 83, Murakami teaches the invention substantially as claimed. Murakami teaches a steel sheet for cylindrical containers (see Abstract, p. 1). Murakami teaches that the steel is cold-rolled (see claims 10-18 and pp. 14-19). Murakami teaches the composition of the steel sheet as shown in the chart (see pp. 14-19 and also claims 10-18):

Element	Claim 83	Murakami
C	0.003% or less	0.0005-0.040
S	0.005~0.03%	0.0100-0.0600
Al	0.01~0.1%	0.0010-0.0700
N	0.02% or less	0.0020-0.0300
P	0.03~0.2%	0.002-0.080
Mn	0.05~0.2% *	0.03-2.00
Fe/impurities	Balance Note: * indicates optional element	Balance

The composition of Murakami thus overlaps the range as claimed, establishing a prima facie case of obviousness for that range. It would have been obvious to one of ordinary

skill in the art at time of invention to have selected a composition in the range as claimed because Murakami teaches the same utility over an overlapping range. Applicant is further directed to MPEP 2144.05.

Murakami teaches that the steel has excellent formability (see pp. 7 and 8, abstract). Regarding the limitations of age resistance, ratios of Mn, Cu and S, and size of MnS/CuS inclusions, Murakami further teaches that the steel is processed in a manner including hot rolling, a controlled cooling, cold rolling and continuous annealing steps substantially similar to those of the instant invention (see pp. 19-24 and claims 17-18, for example). Thus, the steel sheet having the same composition and processed in a similar manner would have been expected by one of ordinary skill in the art to possess the same properties. Applicant is further directed to MPEP 2112.01.

In the alternative, Murakami teaches careful control over the MnS and CuS inclusions (see pp. 17-18). Murakami teaches that the ratio of CuS/MnS < 0.30 through a careful adjustment of the Cu/Mn ratio (see pp. 17-18). Thus, Murakami teaches that the amounts of Mn, Cu and S are results-effective variables with respect to the softening of the material at welding (see pp. 17-18). It would have been obvious to one of ordinary skill in the art at time of invention to have optimized the relative amounts of Mn, Cu and S, because Murakami teaches that these ratios affect the softening of the material (see pp. 17-18). Applicant is further directed to MPEP 2144.05.

Also in the alternative, it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art, In re Cooper and Foley 1943 C.D. 357, 553 O.G. 177; 57 USPQ 117, Taklatwalla v. Marburg, 620

O.G. 685, 1949 C.D. 77, and In re Pilling, 403 O.G. 513, 44 F(2) 878, 1931 C.D. 75. In the absence of evidence to the contrary, the selection of the proportions of elements would appear to require no more than routine investigation by those of ordinary skill in the art. In re Austin, et al., 149 USPQ 685, 688. In the instant case, the amounts of Mn, Cu and S taught by Murakami fall within the ratios as claimed.

Regarding claim 85, Murakami teaches that the amount of N is 0.0020-0.0300 (see claims 10-18), said range overlapping the range as claimed and establishing a prima facie case of obviousness for that range. Regarding claim 86, Murakami teaches that the amount of P is 0.002-0.080 (see claims 10-18), said range overlapping the range as claimed and establishing a prima facie case of obviousness for that range. Regarding claim 87, Murakami teaches that the composition comprises 0.002-0.50% Si (see claims 10-18), said range overlapping the range as claimed and establishing a prima facie case of obviousness for that range. Regarding claim 88, Murakami teaches that the amount of N is 0.0020-0.0300 and the amount of P is 0.002-0.080 (see claims 10-18), said range overlapping the range as claimed and establishing a prima facie case of obviousness for that range.

Regarding claim 89, Murakami does not describe the ratio of Al/N as claimed. However it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art In the absence of evidence to the contrary, the selection of the proportions of elements would appear to require no more than routine investigation by those of ordinary skill in the art. In the instant case, the amounts of Al and N taught by Murakami fall within the ratios as claimed.

Regarding claims 90-91, Murakami teaches that the steel may comprise Mo in amount of 0.10 or less (see pp. 13 and 19), said range overlapping the range as claimed and establishing a prima facie case of obviousness for that range. Regarding claims 92-94, Murakami teaches that the steel may comprise V in amount of 0.10 or less (see pp. 13 and 19), said range overlapping the range as claimed and establishing a prima facie case of obviousness for that range.

Regarding claim 95, Murakami teaches the invention substantially as claimed. Murakami teaches a steel sheet for cylindrical containers (see Abstract, p. 1). Murakami teaches that the steel is cold-rolled (see claims 10-18 and pp. 14-19). Murakami teaches the composition of the steel sheet as shown in the chart (see pp. 14-19 and also claims 10-18):

Element	Claim 95	Murakami
C	0.0005-0.003% or less	0.0005-0.040
S	0.003-0.025%	0.0100-0.0600
Al	0.01~0.08%	0.0010-0.0700
N	0.02% or less	0.0020-0.0300
P	0.2% or less	0.002-0.080
Cu	0.01~0.2%	0.005-0.050
Fe/impurities	Balance	Balance
	Note:	
	* indicates optional element	

The composition of Murakami thus overlaps the range as claimed, establishing a prima facie case of obviousness for that range.

Murakami teaches that the steel has excellent formability (see pp. 7 and 8, abstract). Regarding the limitations of age resistance, ratios of Cu and S, and size of CuS inclusions, Murakami further teaches that the steel is processed in a manner including hot rolling, a controlled cooling, cold rolling and continuous annealing steps substantially similar to those of the instant invention (see pp. 19-24 and claims 17-18, for example). Thus, the steel sheet having the same composition and processed in a similar manner would have been expected by one of ordinary skill in the art to possess the same properties.

In the alternative, Murakami teaches careful control over the MnS and CuS inclusions (see pp. 17-18). Murakami teaches that the ratio of CuS/MnS < 0.30 through a careful adjustment of the Cu/Mn ratio (see pp. 17-18). Thus, Murakami teaches that the amounts of Mn, Cu and S are results-effective variables with respect to the softening of the material at welding (see pp. 17-18). It would have been obvious to one of ordinary skill in the art at time of invention to have optimized the relative amounts of Mn, Cu and S, because Murakami teaches that these ratios affect the softening of the material (see pp. 17-18).

Also in the alternative, it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art. In the instant case, the amounts of Cu and S taught by Murakami fall within the ratios as claimed.

Regarding claim 96, Murakami teaches that the amount of P is 0.002-0.080 (see claims 10-18), said range overlapping the range as claimed and establishing a prima facie case of obviousness for that range. Regarding claim 97, Murakami teaches that the amount of N is 0.0020-0.0300 (see claims 10-18), said range overlapping the range as claimed and establishing a prima facie case of obviousness for that range.

Regarding claim 98, Murakami teaches careful control over the MnS and CuS inclusions (see pp. 17-18). Murakami teaches that the ratio of CuS/MnS < 0.30 through a careful adjustment of the Cu/Mn ratio (see pp. 17-18). Thus, Murakami teaches that the amounts of Mn, Cu and S are results-effective variables with respect to the softening of the material at welding (see pp. 17-18). It would have been obvious to one of ordinary skill in the art at time of invention to have optimized the relative amounts of Mn, Cu and S, because Murakami teaches that these ratios affect the softening of the material (see pp. 17-18).

In the alternative, it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art. In the instant case, the amounts of Cu and S taught by Murakami fall within the ratios as claimed.

Regarding claim 99, Murakami teaches that the amount of P is 0.002-0.080 (see claims 10-18), said range overlapping the claimed range of 0.03~ 0.2% and establishing a prima facie case of obviousness for that range. Regarding claim 100, Murakami teaches that the composition comprises 0.002-0.50% Si (see claims 10-18), said range overlapping the range as claimed and establishing a prima facie case of obviousness for that range. Regarding claim 101, Murakami teaches that the amount of N is 0.0020-

0.0300 and the amount of P is 0.002-0.080 (see claims 10-18), said range overlapping the range as claimed and establishing a prima facie case of obviousness for that range. It would have been obvious to one of ordinary skill in the art at time of invention to have selected amounts of N and P in the range as claimed because Murakami teaches the same utility over an overlapping range.

Regarding claim 102, Murakami does not describe the ratio of Al/N as claimed. However it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art. In the instant case, the amounts of Al and N taught by Murakami fall within the ratios as claimed.

Regarding claims 103-104, Murakami teaches that the steel may comprise Mo in amount of 0.10 or less (see pp. 13 and 19), said range overlapping the range as claimed and establishing a prima facie case of obviousness for that range. It would have been obvious to one of ordinary skill in the art at time of invention to have selected an amount of Mo in the range as claimed because Murakami teaches the same utility over an overlapping range. Regarding claims 105-107, Murakami teaches that the steel may comprise V in amount of 0.10 or less (see pp. 13 and 19), said range overlapping the range as claimed and establishing a prima facie case of obviousness for that range.

Regarding claim 108, Murakami teaches the invention substantially as claimed. Murakami teaches a steel sheet for cylindrical containers (see Abstract, p. 1). Murakami teaches that the steel is cold-rolled (see claims 10-18 and pp. 14-19). Murakami teaches the composition of the steel sheet as shown in the following chart (see pp. 14-19 and also claims 10-18):

Element	Claim 108	Murakami
C	0.0005-0.003% or less	0.0005-0.040
S	0.003-0.025%	0.0100-0.0600
Al	0.01-0.08%	0.0010-0.0700
N	0.02% or less	0.0020-0.0300
P	0.2% or less	0.002-0.080
Mn	0.03-0.2% *	0.03-2.00
Cu	0.005-0.2% *	0.005-0.050*
Fe/impurities	Balance	Balance
	Note:	
	* indicates optional element	

The composition of Murakami thus overlaps the range as claimed, establishing a prima facie case of obviousness for that range.

Murakami teaches that the steel has excellent formability (see pp. 7 and 8, abstract). Regarding the limitations of age resistance, ratios of Mn, Cu and S, and size of MnS/CuS inclusions, Murakami further teaches that the steel is processed in a manner including hot rolling, a controlled cooling, cold rolling and continuous annealing steps substantially similar to those of the instant invention (see pp. 19-24 and claims 17-18, for example). Thus, the steel sheet having the same composition and processed in a similar manner would have been expected by one of ordinary skill in the art to possess the same properties.

In the alternative, Murakami teaches careful control over the MnS and CuS inclusions (see pp. 17-18). Murakami teaches that the ratio of CuS/MnS < 0.30 through a careful adjustment of the Cu/Mn ratio (see pp. 17-18). Thus, Murakami teaches that the amounts of Mn, Cu and S are results-effective variables with respect to the softening of the material at welding (see pp. 17-18). It would have been obvious to one of ordinary skill in the art at time of invention to have optimized the relative amounts of Mn, Cu and S, because Murakami teaches that these ratios affect the softening of the material (see pp. 17-18).

Also in the alternative, it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art. In the instant case, the amounts of Mn, Cu and S taught by Murakami fall within the ratios as claimed.

Regarding claim 109, Murakami teaches that the amount of P is 0.002-0.080 (see claims 10-18), said range overlapping the range as claimed and establishing a prima facie case of obviousness for that range. It would have been obvious to one of ordinary skill in the art at time of invention to have selected an amount of P in the range as claimed because Murakami teaches the same utility over an overlapping range.

Regarding claim 110, Murakami teaches that the amount of N is 0.0020-0.0300 (see claims 10-18), said range overlapping the range as claimed and establishing a prima facie case of obviousness for that range.

Regarding claim 111, Murakami does not teach the number of precipitates. Murakami further teaches that the steel is processed in a manner including hot rolling, a controlled cooling, cold rolling and continuous annealing steps substantially similar to

those of the instant invention (see pp. 19-24 and claims 17-18, for example). Thus, the steel sheet having the same composition and processed in a similar manner would have been expected by one of ordinary skill in the art to possess the same properties.

Regarding claim 112, Murakami teaches careful control over the MnS and CuS inclusions (see pp. 17-18). Murakami teaches that the ratio of CuS/MnS < 0.30 through a careful adjustment of the Cu/Mn ratio (see pp. 17-18). Thus, Murakami teaches that the amounts of Mn, Cu and S are results-effective variables with respect to the softening of the material at welding (see pp. 17-18). It would have been obvious to one of ordinary skill in the art at time of invention to have optimized the relative amounts of Mn, Cu and S, because Murakami teaches that these ratios affect the softening of the material (see pp. 17-18). Also in the alternative, it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art. In the instant case, the amounts of Mn, Cu and S taught by Murakami fall within the ratios as claimed.

Regarding claim 113, Murakami does not teach the number of precipitates. Murakami further teaches that the steel is processed in a manner including hot rolling, a controlled cooling, cold rolling and continuous annealing steps substantially similar to those of the instant invention (see pp. 19-24 and claims 17-18, for example). Thus, the steel sheet having the same composition and processed in a similar manner would have been expected by one of ordinary skill in the art to possess the same properties.

Regarding claim 114, Murakami teaches that the amount of P is 0.002-0.080 (see claims 10-18), said range overlapping the claimed range of 0.03~0.2% and

establishing a prima facie case of obviousness for that range. Regarding claim 115, Murakami teaches that the composition comprises 0.002-0.50% Si (see claims 10-18), said range overlapping the range as claimed and establishing a prima facie case of obviousness for that range. Regarding claim 116, Murakami teaches that the amount of N is 0.0020-0.0300 and the amount of P is 0.002-0.080 (see claims 10-18), said range overlapping the range as claimed and establishing a prima facie case of obviousness for that range.

Regarding claim 117, Murakami does not describe the ratio of Al/N as claimed. However it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art. In the instant case, the amounts of Al and N taught by Murakami fall within the ratios as claimed.

Regarding claim 118, Murakami teaches that the steel may comprise Mo in amount of 0.10 or less (see pp. 13 and 19), said range overlapping the range as claimed and establishing a prima facie case of obviousness for that range. Regarding claims 119-122, Murakami teaches that the steel may comprise V in amount of 0.10 or less (see pp. 13 and 19), said range overlapping the range as claimed and establishing a prima facie case of obviousness for that range.

Regarding claims 163-165, Murakami does not describe the ratio of V/C as claimed. However it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art. In the instant case, the amounts of V and C taught by Murakami fall within the ratios as claimed.

6. Claims 83, 85, 87-122 and 163-165 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese patent document JP 10-158782 (machine translation attached; hereinafter "Kodama").

Regarding claim 83, Kodama teaches the invention substantially as claimed. Kodama teaches a steel sheet (plate) for photograph etching (see [0001]). Kodama teaches the composition of the steel sheet as shown in the chart (see [0008], [0015]-[0021] and also claims 1 and 2):

Element	Claim 83	Kodama
C	0.003% or less	0.005% or less
S	0.005~0.03%	0.001-0.02%
Al	0.01~0.1%	0.002-0.1%
N	0.02% or less	0.008% or less
P	0.03~0.2%	0.1% or less*
Mn	0.05~0.2%	0.1-0.5%
Fe/impurities	Balance Note: * indicates optional element	Balance

The composition of Kodama thus overlaps the range as claimed, establishing a prima facie case of obviousness for that range. It would have been obvious to one of ordinary skill in the art at time of invention to have selected a composition in the range as claimed because Kodama teaches the same utility over an overlapping range. Applicant is further directed to MPEP 2144.05.

Kodama teaches that the invention involves forming many holes in the steel sheet (i.e., the sheet is saxicavous; see [0001]-[0004]). Kodama teaches that the MnS inclusions affect the ability to etch the holes in the sheet, and that the size of the MnS inclusions is thus limited such that a 2σ value of particle size falls within 0.05-2 μm (see [00011]-[0013], [0008], and claim 1). The particle size range of the MnS inclusions in the steel of Kodama overlaps the size as claimed, establishing a prima facie case of obviousness for that range. It would have been obvious to one of ordinary skill in the art at time of invention to have selected a particles size of MnS inclusions in the range as claimed because Kodama teaches the same utility over an overlapping range. Applicant is further directed to MPEP 2144.05.

Kodama teaches that the sheet is cold rolled (see [0009]-[0010], claims 2 and 3, and [0036]-[0038]). Regarding the limitations of the relative ratios of Mn and S, it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art. In the instant case, the amounts of Mn and S taught by Kodama fall within the ratios as claimed.

In the alternative, Kodama teaches that the amounts of both Mn and S are carefully controlled in the steel (see [0017]-[0018]). Kodama teaches that too little Mn

does not prevent brittleness, while too much Mn causes too much hardness in the steel (see [0017]). Kodama teaches that too little S results in poorly formed nitrides, while too much S results in cracking during hot rolling (see [0018]). Thus the amounts of Mn and S are results-effective variables, respectively, and one of ordinary skill in the art would have optimized the amounts of reach (and thus optimized the relative ratio) for the reasons taught by Kodama and cited above. Applicant is further directed to MPEP 2144.05.

Regarding the limitation of "having aging resistance," there is no quantity of aging resistance claimed. Thus the sheet of Kodama would have inherently had an aging resistance, because it would have been able to support some load prior to stretcher strain or creep failure.

Regarding claim 85, Kodama teaches wherein the N content is preferably 0.004% or less (see [0020]).

Regarding claim 87, Kodama teaches that 0.1% of Cr may be added to the steel (see [0021]), overlapping the range as claimed and establishing a prima facie case of obviousness for that range. Regarding claim 88, Kodama teaches that the amount of N is preferably 0.008% or less (see [0020]), and that P may be added in an amount of 0.1% or less (see [0021]). The amounts of N and P in the steel of Kodama overlap the ranges as claimed, establishing a prima facie case of obviousness for the ranges.

Regarding claim 89, Kodama does not describe the ratio of Al/N as claimed. However it is well settled that there is no invention in the discovery of a general formula

if it covers a composition described in the prior art. In the instant case, the amounts of Al and N taught by Kodama overlap the ratios as claimed.

In the alternative, Kodama teaches that the amount of Al in the steel serves to fix free N as AlN (see [0019]). Thus, Kodama teaches that the amount of Al is a results-effective variable with regard to AlN formation, and the amount of Al relative to N would have been optimized by one of ordinary skill in the art at time of invention in order to control the AlN formation.

Regarding claims 90-91, Kodama teaches that 0.1% or less of Mo may be added (see [0021]), overlapping the range as claimed and establishing a prima facie case of obviousness for that range. Regarding claims 92-94, Kodama teaches that 0.1% or less of V may be added (see [0021]), overlapping the range as claimed and establishing a prima facie case of obviousness for that range.

Regarding claim 95, Kodama teaches the composition of the steel sheet as shown in the chart (see [0008], [0015]-[0021] and also claims 1 and 2):

Element	Claim 95	Kodama
C	0.0005-0.003% or less	0.005% or less
S	0.003-0.025%	0.001-0.02%
Al	0.01~0.08%	0.002-0.1%
N	0.02% or less	0.008% or less
P	0.2% or less	0.1% or less*
Cu	0.01~0.2%	0.1% or less*

Fe/impurities	Balance Note: * indicates optional element	Balance

The composition of Kodama thus overlaps the range as claimed, establishing a prima facie case of obviousness for that range. It would have been obvious to one of ordinary skill in the art at time of invention to have selected a composition in the range as claimed because Kodama teaches the same utility over an overlapping range.

Regarding the limitations of age resistance and size of CuS inclusions, Kodama further teaches that the steel is processed in a manner including hot rolling, a controlled cooling, cold rolling and continuous annealing steps substantially similar to those of the instant invention (see [0009]-[0010], claims 2 and 3, and [0036]-[0038]). Thus, the steel sheet having the same composition and processed in a similar manner would have been expected by one of ordinary skill in the art to possess the same properties. Applicant is further directed to MPEP 2112.01.

Regarding the limitations of the relative ratios of Cu and S, it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art. In the instant case, the amounts of Cu and S taught by Kodama fall within the ratios as claimed.

In the alternative, Kodama teaches that the amounts of S are carefully controlled in the steel (see [0017]-[0018]). Kodama teaches that too little S results in poorly formed nitrides, while too much S results in cracking during hot rolling (see [0018]).

Thus the amount S is a results-effective variable, respectively, and one of ordinary skill in the art would have optimized the amount of S (and thus optimized the relative ratio) for the reasons taught by Kodama and cited above. Applicant is further directed to MPEP 2144.05.

Regarding claim 96, Kodama teaches that 0.1% or less of P may be added (see [0021]), overlapping the range as claimed and establishing a prima facie case of obviousness for that range.

Regarding claim 97, Kodama teaches wherein the N content is preferably 0.004% or less (see [0020]).

Regarding claim 98, it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art. In the instant case, the amounts of Cu and S taught by Kodama fall within the ratios as claimed.

In the alternative, Kodama teaches that the amounts of S are carefully controlled in the steel (see [0017]-[0018]). Kodama teaches that too little Mn does not prevent brittleness, while too much Mn causes too much hardness in the steel (see [0017]). Kodama teaches that too little S results in poorly formed nitrides, while too much S results in cracking during hot rolling (see [0018]). Thus the amount S is a results-effective variable, respectively, and one of ordinary skill in the art would have optimized the amount of S (and thus optimized the relative ratio) for the reasons taught by Kodama and cited above. Applicant is further directed to MPEP 2144.05.

Regarding claim 99, Kodama teaches that 0.1% or less of P may be added (see [0021]), overlapping the claimed range of 0.03~0.2% and establishing a prima facie

case of obviousness for that range. Regarding claim 100, Kodama teaches that 0.1% of Cr may be added to the steel (see [0021]), overlapping the range as claimed and establishing a prima facie case of obviousness for that range. Regarding claim 101, Kodama teaches that the amount of N is preferably 0.008% or less (see [0020]), and that P may be added in an amount of 0.1% or less (see [0021]). The amounts of N and P in the steel of Kodama overlap the ranges as claimed, establishing a prima facie case of obviousness for the ranges.

Regarding claim 102, Kodama does not describe the ratio of Al/N as claimed. However it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art. In the instant case, the amounts of Al and N taught by Kodama overlap the ratios as claimed.

In the alternative, Kodama teaches that the amount of Al in the steel serves to fix free N as AlN (see [0019]). Thus, Kodama teaches that the amount of Al is a results-effective variable with regard to AlN formation, and the amount of Al relative to N would have been optimized by one of ordinary skill in the art at time of invention in order to control the AlN formation.

Regarding claims 103-104, Kodama teaches that 0.1% or less of Mo may be added (see [0021]), overlapping the range as claimed and establishing a prima facie case of obviousness for that range. Regarding claims 105-107, Kodama teaches that 0.1% or less of V may be added (see [0021]), overlapping the range as claimed and establishing a prima facie case of obviousness for that range.

Regarding claim 108, Kodama teaches the composition of the steel sheet as shown in the chart (see [0008], [0015]-[0021] and also claims 1 and 2):

Element	Claim 108	Kodama
C	0.0005-0.003% or less	0.005% or less
S	0.003-0.025%	0.001-0.02%
Al	0.01-0.08%	0.002-0.1%
N	0.02% or less	0.008% or less
P	0.2% or less	0.1% or less*
Mn	0.03-0.2% *	0.1-0.5%
Cu	0.005-0.2% *	0.1% or less*
Fe/impurities	Balance	Balance
	Note:	
	* indicates optional element	

The composition of Kodama thus overlaps the range as claimed, establishing a prima facie case of obviousness for that range. It would have been obvious to one of ordinary skill in the art at time of invention to have selected a composition in the range as claimed because Kodama teaches the same utility over an overlapping range.

Regarding the limitations of age resistance and size of MnS and CuS inclusions, Kodama further teaches that the steel is processed in a manner including hot rolling, a controlled cooling, cold rolling and continuous annealing steps substantially similar to

those of the instant invention (see [0009]-[0010], claims 2 and 3, and [0036]-[0038]). Thus, the steel sheet having the same composition and processed in a similar manner would have been expected by one of ordinary skill in the art to possess the same properties.

Further, Kodama teaches that the MnS inclusions affect the ability to etch the holes in the sheet, and that the size of the MnS inclusions is thus limited such that a 2σ value of particle size falls within 0.05-2 μm (see [00011]-[0013], [0008], and claim 1). The particle size range of the MnS inclusions in the steel of Kodama overlaps the size as claimed, establishing a prima facie case of obviousness for that range. It would have been obvious to one of ordinary skill in the art at time of invention to have selected a particles size of MnS inclusions in the range as claimed because Kodama teaches the same utility over an overlapping range.

Regarding the limitations of the relative ratios of Mn, Cu and S, it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art. In the instant case, the amounts of Mn, Cu and S taught by Kodama fall within the ratios as claimed.

In the alternative, Kodama teaches that the amounts of both Mn and S are carefully controlled in the steel (see [0017]-[0018]). Kodama teaches that too little Mn does not prevent brittleness, while too much Mn causes too much hardness in the steel (see [0017]). Kodama teaches that too little S results in poorly formed nitrides, while too much S results in cracking during hot rolling (see [0018]). Thus the amounts of Mn and S are results-effective variables, respectively, and one of ordinary skill in the art would

have optimized the amounts of reach (and thus optimized the relative ratio of Mn, S and Cu) for the reasons taught by Kodama and cited above.

Regarding claim 109, Kodama teaches that 0.1% or less of P may be added (see [0021]), overlapping the range as claimed and establishing a prima facie case of obviousness for that range.

Regarding claim 110, Kodama teaches wherein the N content is preferably 0.004% or less (see [0020]).

Regarding claim 111, Kodama does not specify what is the number of precipitates in the steel. Kodama further teaches that the steel is processed in a manner including hot rolling, a controlled cooling, cold rolling and continuous annealing steps substantially similar to those of the instant invention (see [0009]-[0010], claims 2 and 3, and [0036]-[0038]). Thus, the steel sheet having the same composition and processed in a similar manner would have been expected by one of ordinary skill in the art to possess the same properties.

Regarding claim 112, it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art. In the instant case, the amounts of Mn, Cu and S taught by Kodama fall within the ratios as claimed.

In the alternative, Kodama teaches that the amounts of both Mn and S are carefully controlled in the steel (see [0017]-[0018]). Kodama teaches that too little Mn does not prevent brittleness, while too much Mn causes too much hardness in the steel (see [0017]). Kodama teaches that too little S results in poorly formed nitrides, while too much S results in cracking during hot rolling (see [0018]). Thus the amounts of Mn and

S are results-effective variables, respectively, and one of ordinary skill in the art would have optimized the amounts of reach (and thus optimized the relative ratio of Mn, S and Cu) for the reasons taught by Kodama and cited above.

Regarding claim 113, Kodama does not specify what is the number of precipitates in the steel. Kodama further teaches that the steel is processed in a manner including hot rolling, a controlled cooling, cold rolling and continuous annealing steps substantially similar to those of the instant invention (see [0009]-[0010], claims 2 and 3, and [0036]-[0038]). Thus, the steel sheet having the same composition and processed in a similar manner would have been expected by one of ordinary skill in the art to possess the same properties.

Regarding claim 114, Kodama teaches that 0.1% or less of P may be added (see [0021]), overlapping the claimed range of 0.03~0.2% and establishing a prima facie case of obviousness for that range. Regarding claim 115, Kodama teaches that 0.1% of Cr may be added to the steel (see [0021]), overlapping the range as claimed and establishing a prima facie case of obviousness for that range. Regarding claim 116, Kodama teaches that the amount of N is preferably 0.008% or less (see [0020]), and that P may be added in an amount of 0.1% or less (see [0021]). The amounts of N and P in the steel of Kodama overlap the ranges as claimed, establishing a prima facie case of obviousness for the ranges.

Regarding claim 117, Kodama does not describe the ratio of Al/N as claimed. However it is well settled that there is no invention in the discovery of a general formula

if it covers a composition described in the prior art. In the instant case, the amounts of Al and N taught by Kodama overlap the ratios as claimed.

In the alternative, Kodama teaches that the amount of Al in the steel serves to fix free N as AlN (see [0019]). Thus, Kodama teaches that the amount of Al is a results-effective variable with regard to AlN formation, and the amount of Al relative to N would have been optimized by one of ordinary skill in the art at time of invention in order to control the AlN formation.

Regarding claims 118-119, Kodama teaches that 0.1% or less of Mo may be added (see [0021]), overlapping the range as claimed and establishing a prima facie case of obviousness for that range. Regarding claims 120-122, Kodama teaches that 0.1% or less of V may be added (see [0021]), overlapping the range as claimed and establishing a prima facie case of obviousness for that range.

Regarding claims 163-165, Kodama does not describe the ratio of V/C as claimed. However it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art. In the instant case, the amounts of V and C taught by Kodama fall within the ratios as claimed.

Response to Arguments

7. Applicant's arguments filed 19 May 2010 have been fully considered but they are not persuasive.

Applicant argues that the invention differs from that of Murakami. Applicant argues that the invention relates to sheet used for automobiles, electronic appliances

and the like, while Murakami is directed to manufacturing of a can. However, the intended use of the steel sheet as claimed is not sufficient to overcome the prior art rejections. Firstly, applicant is arguing features which are not claimed. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See In re Van Geuns, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Thus, the technical field of the invention is not relevant to the rejection of the claims, but rather to the disclosure in general. Secondly, all of the limitations of the claim would have been obvious to one of ordinary skill in the art, for the reasons stated in the rejection. Even if the intended use of the steel were claimed, this would not be sufficient to rebut the prima facie case of obviousness. If the body of a claim fully and intrinsically sets forth all of the limitations of the claimed invention, and the preamble merely states, for example, the purpose or intended use of the invention, rather than any distinct definition of any of the claimed invention's limitations, then the preamble is not considered a limitation and is of no significance to claim construction. Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1305, 51 USPQ2d 1161, 1165 (Fed. Cir. 1999). See also Rowe v. Dror, 112 F.3d 473, 478, 42 USPQ2d 1550, 1553 (Fed. Cir. 1997) ("where a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention, the preamble is not a claim limitation").

Applicant argues that Murakami does not teach or suggest the claim limitation regarding the composition range of Mn/S, Cu/S, Mn+Cu and (Mn+Cu)/S. The examiner agrees that Murakami does not teach the limitations as claimed. However, said

limitations would have been obvious to one of ordinary skill in the art at time of invention, for the reasons stated in the rejection and in section 9 of the prior Office action.

Applicant further argues that Murakami does not teach the limitations of the size of the precipitates in the steel. The examiner agrees with this statement, however, the claimed steel would have been obvious to one of ordinary skill in the art. Murakami teaches that the composition of the steel, especially of Mn, Cu and S, is carefully controlled in order to form precipitates that will enhance the mechanical properties of the steel (see pp. 17-8 as cited previously). As was stated previously, Murakami teaches that the ratios of the elements overlaps the claimed ratios. Thus, the steel with the claimed composition and structure would have been obvious to one of ordinary skill in the art due to the teachings of Murakami of the importance of control over the precipitates to make a steel having desirable mechanical properties.

Regarding the Applicant's parallel arguments for the Kodama reference, the examiner notes that the technical field is not claimed, and is also not sufficient to rebut the prima facie case of obviousness. Regarding the compositional limitations, the examiner agrees that Kodama does not teach the claimed ratios, however they would have been obvious to one of ordinary skill in the art for the reasons stated in the rejection. Regarding the size of the inclusions, applicant argues that precipitates in the claimed range are not apparent from Figure 1 of Kodama. However, Kodama as previously cited explicitly teaches that the range of precipitates is 0.05-2 microns (see

[0008], [0011]-[0013] and claim 1; especially [0013]). Thus applicant has not rebutted the prima facie case of obviousness based on the overlapping range of size.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER KESSLER whose telephone number is (571)272-6510. The examiner can normally be reached on Mon-Fri, 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/George Wyszomierski/
Primary Examiner
Art Unit 1793

csk
July 16, 2010